

EPA Proposes Cleanup Plan for Soil and Ground Water

Sauget Area 2 Superfund Site

St. Clair County, Illinois

June 2013

Share your opinion

The EPA invites comments on its proposed cleanup actions for the Sauget Area 2 site. Public input helps the EPA determine the best course of action.

Public meeting

The Agency encourages you to attend the public meeting on the Sauget Area 2 site scheduled for Wednesday, June 12, 6:30 p.m., at the Cahokia Village Hall, 103 Main St., Cahokia.

Written statements on the proposed cleanup plan can also be submitted during the **public comment period** that runs from **June 7 to July 8**.

There are several ways to offer comments on the proposed plan:

- Submit comments orally or in writing at the public meeting.
- Fill out and mail the enclosed comment form.
- Fill out the public comment form at: www.epa.gov/region5/cleanup/ saugetarea2/
- Email to EPA Community Involvement Coordinator Patricia Krause at krause.patricia@epa.gov.

The U.S. Environmental Protection Agency is proposing a cleanup plan to contain health risks associated with contaminated soil and polluted underground water supplies. The environmental term for underground water is "ground water." The EPA considers risk to be the chance of harmful effects to people or the environment from pollution. The EPA's plan is to reduce the possibility of exposure to contamination by capping soil and waste on the site with an additional layer of soil, asphalt, crushed rock and other materials to contain the contamination. In addition, the EPA plans to use a pumping system to collect and store oily liquids including chlorinated solvents and petroleum products present in a well on the site. Measures to protect the Mississippi River shoreline from erosion will also be implemented. Controls will also be put in place to limit access to the site and prevent disturbance of soil or waste, and to prevent the use of ground water from the site as drinking water. These site controls may include deed restrictions, zoning restrictions and fencing. If warranted by further findings, the EPA is also prepared to remove contaminated air from inside buildings on the site. The EPA may also deal with possible mobile sources of contamination in soil near the barge ramp on the site with a soil treatment system.

This fact sheet is a summary of the proposed plan for Sauget Area 2 that outlines several proposed cleanup alternatives for the five areas that make up the site and the EPA's recommended cleanup plan for the site. The proposed cleanup plan resulted from a study of the nature and extent of contamination at the site and an evaluation of the different cleanup options available.

The cleanup actions described in this proposed plan follow other extensive response actions that reduced risks at the site. Early actions that were taken to clean up the site included construction of a barrier wall to capture and contain contaminated ground water and prevent it from reaching the Mississippi River. Ground water is treated off-site before discharging to the river. And sediment and surface water is monitored for contamination. Ground water levels and ground water quality are also monitored. EPA will not select a final cleanup plan until after it reviews comments received from the public at a hearing and public comment period (see left- hand box for ways you can participate in the decision-making process). The Agency is issuing this proposed plan as part of its public participation responsibilities under the federal Superfund law. EPA may modify the proposed cleanup plan or select another option based on new information or public comments, so your opinion is important.

¹Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA known as the Superfund law) requires publication of a notice and a proposed plan for the site cleanup. The proposed plan must also be made available to the public for comment. This proposed plan fact sheet is a summary of more detailed information contained in the remedial investigation, feasibility study, and other documents in the administrative record for the Sauget Area 2.

The EPA's proposed plan recommends using a pumping system to recover underground pockets of oily liquid and other materials in liquid form that do not readily mix with ground water. The oily liquid in the Sauget Area 2 ground water will be collected in a storage system.

To keep contaminated material in place and avoid the spread of contamination, the EPA also recommends capping areas of waste with clean soil, asphalt, crushed rock and other materials. Capping slows rainwater from seeping through hazardous materials and carrying pollutants into the ground water. Capping also stops wind from blowing away the hazardous material and keeps people and animals from coming in contact with the pollution.

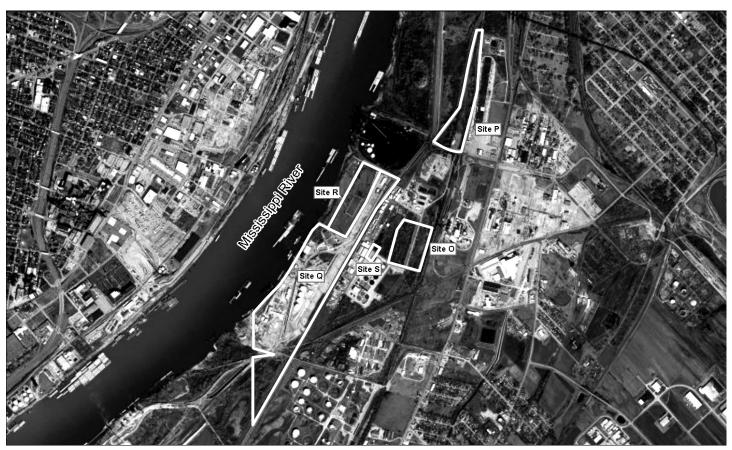
Background and cleanup history

The Sauget Area 2 site covers about 312 acres in a highly industrialized area in the villages of Sauget and Cahokia and the city of East St. Louis, Ill., in St. Clair County, just east of the Mississippi River. The site is made up of five inactive disposal areas, including three closed landfills (Sites P, Q and R), four closed lagoons (Site O) and a waste disposal site associated with an abandoned solvent reclamation facility (Site S). Prior cleanup activity has occurred at three of the five sites (Sites O, Q and R). No action has yet been taken at Site P or Site S. See map, below.

Since the early 1900s, much of the land on the east bank of the Mississippi River has been used for heavy industrial purposes. The EPA first got involved with the Sauget sites in the late 1980s when sediment (river mud) contaminated with PCBs, pesticides and metals was found in the northern part of Dead Creek (part of Sauget Area 1). PCBs are polychlorinated biphenyls and were once widely used in many industrial processes and are hazardous to people and wildlife.

The disposal areas in Sauget Area 2 contain crushed drums, uncontained wastes, construction debris and miscellaneous trash. Contamination from the closed waste disposal areas known as Sites O, P, Q, R and S contribute to a large plume, or mass of contaminated ground water that is flowing toward the Mississippi River. A part of the plume is currently captured by a ground water migration capture and control system installed in 2001. The contaminants in Sites O, P, Q, R and S also contribute to the oily liquid contamination in the ground water.

Environmental cleanup and containment work has occurred over the years at Sauget Area 2, including stabilizing and covering waste on Site O, excavating PCB-contaminated material from ponds in Site Q and installing a ground water control system in Site R. However, environmental risks continue due to contaminants remaining on all the sites in Area 2.



Sauget Area 2 Site map

Site O. Located on Mobile Avenue in the Village of Sauget, Site O occupies 28 acres northeast of the American Bottoms Wastewater Treatment Plant and consists of four closed sludge lagoons associated with the Sauget Wastewater Treatment Plant. Currently, the sludge dewatering lagoons are covered with at least 2 feet of clay and vegetation. Soil samples collected from Site O contained elevated levels of volatile organic compounds (VOCs—petroleum-based chemicals), as well as PCBs, oily materials, heavy metals and other hazardous substances. Ground water samples collected from Site O contained elevated levels of VOCs and heavy metals.

Site P. Site P occupies approximately 32 acres between the Illinois Central Gulf Railroad and the Terminal Railroad north of Monsanto Avenue located in East St. Louis and part of Sauget. Site P operated as an Illinois EPA-permitted landfill for municipal and industrial waste from 1973 to 1984. Soil samples from Site P contained elevated levels of VOCs and metals. Site P is currently vacant and covered. Access to the site is unrestricted.

Site Q. Site Q occupies about 206 acres, a portion of which is a landfill, in the villages of Sauget and Cahokia, and is bordered by Site R and the former Union Electric Sauget Power Plant on the north, the Illinois Central Gulf Railroad and the U.S. Army Corps of Engineers flood control levee on the east, and the Mississippi River on the west.

Compounds detected in soil in the area of Site Q include VOCs, PCBs, metals and other hazardous substances. Due to its large size and varied disposal history, Site Q was divided into sections based on the nature and extent of contamination and the anticipated cleanup actions that would be recommended at the site.

In 1993, Site Q was flooded and river currents unearthed a number of barrels containing hazardous waste. The EPA conducted a cleanup in the northern portion of Site Q (Site QN) in 1995 to stabilize the flooded area. In 1999, the EPA dug up waste from eight different areas on the 25-acre southern portion of Site Q (Site QS). The excavations focused on two former ponds containing PCBs in the southeast corner of Site Q. Approximately 17,032 tons of waste were shipped off-site for disposal. In addition, 3,271 drums were removed and disposed of. The second cleanup was completed in April 2000.

Site R. Located next to a Mississippi River flood control levee in Sauget, Site R is a 36-acre closed industrial waste disposal area bordering the eastern edge of the Mississippi River

Sediment samples collected from a drainage ditch surrounding Site R contained elevated levels of VOCs, PCBs and metals. Sediment samples collected from the Mississippi River near the west side of the site contained elevated levels of VOCs and PCBs. Soil samples contained elevated levels of VOCs, pesticides, PCBs and metals. Ground water under the site contained elevated levels of pesticides, metals and other hazardous substances, which in the past discharged to the Mississippi River. Under the EPA's direction, in 2005 the Pharmacia and Solutia companies constructed a 140-foot-deep underground barrier wall and pumping system to capture contaminated ground water and prevent it from reaching the Mississippi River. The captured ground water is transported via pipelines to the American Bottoms Regional Wastewater Treatment Plant for treatment before discharging to the river.

Prior to the construction of the wall and pumping system, ground water samples collected from wells at and downstream of Site R contained high levels of VOCs. In 1979, based on an agreement with EPA, Monsanto installed a clay cover on Site R to cover waste, limit infiltration through the landfill and prevent direct contact with fill material. The cover's thickness ranges from 2 feet to approximately 8 feet. Access to Site R is monitored and restricted by a perimeter fence surrounding the site. Additionally, warning signs are posted on the fence surrounding the site.

Site S. Site S is located east of the Veolia hazardous waste incinerator. Historic aerial photographs indicate Site S was a drum disposal area. Soil samples contained elevated levels of VOCs, PCBs and metals. The northern portion of the site is covered with grass, and the southern portion is fenced and covered with gravel.

Risks to people and the environment

The EPA reviewed and approved human health and ecological risk assessments conducted by one of the companies responsible for the contamination. These assessments determine which contaminants are most likely to pose a threat to humans, wildlife and the environment. The risk assessments also look at the different ways people may be exposed and then determine the potential health risk.

A number of chemicals of concern have been identified at the Sauget Area 2 site. People and wildlife that come in contact with soil, ground water or air contaminated with these chemicals of concern may face a health risk. One of the main pollutants at the site is a family of petroleum-based chemicals called VOCs. Construction workers performing tasks such as excavation on the site could inhale the VOCs emitted into the air from ground water and liquid waste. Other chemicals of concern include metals, pesticides and remaining PCBs that could cause potential health effects to utility and construction workers through inhalation and direct skin contact with soil and

waste. The ecological risk assessment evaluated potential effects to fish and wildlife from exposure to chemicals in the Mississippi River. The findings indicated the previous cleanup activities on Site R (installation of the ground water barrier wall) had lowered the risks to people and aquatic organisms and that no adverse ecological impacts were identified from the sediment in the Mississippi River. The finding also indicated that no risks were present to the federally endangered pallid sturgeon or other fish populations and that no risks were associated with sediment or surface water from the Mississippi River.

Cleanup options considered

The EPA considered 22 alternatives for managing and cleaning up contaminated soil and ground water. Each option was evaluated against nine criteria required by law (see box on right for an explanation of the criteria). The EPA's proposed cleanup actions are designed to reduce health and environmental risks. Cleanup goals were established based on federal and state regulations. The EPA believes these cleanup actions will protect people and the environment. Full details are provided in the cleanup study reports and the proposed plan on the website and at the information repository listed in the box on the second page of this fact sheet.

Each cleanup alternative, except Alternative 1 (no action), reduces exposure by people and animals to chemicals in soil, sediment and ground water. These alternatives are summarized in the table on pages 5 and 6. All alternatives, again except for Alternative 1 (no action), require institutional and access controls, which are deed restrictions or covenants that limit property use and make sure ground water is not used for drinking. In addition, a cover or cap appropriate for the type of contamination and the way the property is used will be installed with each alternative. Each cleanup option also includes long-term monitoring to make sure the cleanup steps remain effective and in place.

Evaluation of cleanup alternatives

Each of the cleanup alternatives was evaluated against the nine criteria set by the Superfund law (see chart on page 7). EPA staff is recommending a combination of Alternatives O2 (soil cover over waste areas and institutional controls); P3 (asphalt cover over potentially mobile source area with landfill cover over the rest of the waste areas and oily liquid collection well, vapor intrusion mitigation, and institutional and access controls); QN2 (crushed rock cover, vapor intrusion mitigation and institutional and access controls); QC3 (crushed rock cover, shoreline erosion protection and soil treatment at mobile source areas with institutional and access controls); QS3 (removal of drums, cover, and institutional and access controls); R2 (soil cover over

Evaluation criteria for Superfund cleanup alternatives

- 1. Overall protectiveness of human health and the environment determines whether an alternative protects living things. This standard can be met by reducing or removing pollution or by reducing exposure to it.
- 2. Compliance with applicable or relevant and appropriate requirements, referred to as ARARs, ensures alternatives comply with federal and state laws.
- **3. Long-term effectiveness and permanence** evaluates how well an alternative will work over the long term, including how safely remaining contamination can be managed.
- **4.** Reduction of toxicity, mobility or volume of contaminants through treatment determines how well the alternative reduces the toxicity, movement and amount of pollution.
- **5. Short-term effectiveness** compares how quickly an alternative can help the situation and how much risk exists while the alternative is under construction.
- **6. Implementability** evaluates how feasible the alternative is and whether materials and services are available in the area.
- **7. Cost** includes not only buildings, equipment, materials and labor, but also the cost of maintaining the alternative for the life of the cleanup.
- **8. State support/agency acceptance** determines whether the state environmental agency (in this case the Illinois EPA) accepts an alternative. The EPA evaluates this criterion after receiving public comments.
- **9.** Community acceptance considers the opinions of the community about the proposed cleanup plan. The EPA evaluates this standard after a public hearing and comment period.

entire site and institutional and access controls); and S3 (on-site treatment of vapors, soil cover over entire area and institutional and access controls). This recommendation is based on several justifications.

- These alternatives will achieve the best balance among the nine criteria.
- These alternatives will significantly reduce the exposure of people and wildlife to contamination.

(main text continued on page 7)

Cleanup options considered

Sites Cleanup Alternatives		Actions	Summary of Action				
O,P,Q,R,S	Alternative O1 , P1 , Q1 , R1 and S1 No action		The Superfund law requires that all proposed cleanup plans include a no-action alternative as a comparison point.				
0	Alternative O2*	Soil cover and institutional and access controls	In addition to the institutional and access controls described above, this alternative includes a soil cover over identified waste areas that are not already covered by a minimum of 2 feet of soil.				
	Alternative O3	Same as Alternative O2 plus phyto-technology	With this option, specially selected plants would be used to help reduce contaminants of concern from the air (called phyto-technology).				
	Alternative O4	Layered cover with institutional and access controls	A layered cap that promotes surface water drainage and minimizes infiltration would be installed under this option.				
Р	Alternative P2	Asphalt cover over potentially mobile source area with landfill cover (soil and clay) over the other waste areas, possible vapor mitigation and institutional and access controls	This alternative uses two types of covers and institutional and access controls. Additionally, indoor air and/or sub-slab sampling will be completed to further evaluate if a potential risk does exist in the building located on Site P, PT's Adult Entertainment. If the analysis indicates a potential risk does exist a vapor control system would be designed and installed inside PT's as part of Alternative P2.				
	Alternative P3*	Same as Alternative P2 plus oily liquid collection	This alternative includes the components of Alternative P2, with a pump and a collection and storage system to remove oily liquid that accumulates in the well on Site P. Accumulated oily liquid will be periodically removed from the storage system in compliance with state and federal regulations.				
	Alternative P4	Layered cover with institutional and access controls	Like alternative O4, a layered cap that promotes surface water drainage and minimizes infiltration would be installed under this option.				
Q North	Alternative QN2*	Crushed rock cover over dogleg area, possible vapor mitigation and institutional and access controls	In addition to a crushed rock cover over the part of the northern portion of Site Q that wraps around the eastern boundary of Site R, known as the dogleg portion of Site Q, indoor air and/or sub-slab sampling will be completed to further evaluate if a potential risk does exist. If the analysis indicates a potential risk does exist, a vapor control system would be designed and installed inside the warehouse as part of Alternative QN2. Institutional controls will also be implemented to address vapor intrusion into any newly constructed buildings within the boundaries of the site. Vapor intrusion would be addressed through an evaluation of each new building and vapor mitigation measures would be designed into the building to address any potential unacceptable risk.				
	Alternative QN3	Same as Alternative QN2 but with a layered cover instead of crushed rock	In addition to the vapor intrusion system described for QN2, a layered cap that promotes surface water drainage and minimizes infiltration would be installed over the dogleg area under this option.				
	Alternative QN4	Same as Alternative QN3, except the layered cover is not limited to the dogleg area of Site Q	Industrial waste areas on site QN would be covered by a layered cap that promotes surface water drainage and minimizes infiltration under this option.				
	Alternative QN5	Same as alterative QN2 except the crushed rock cover is not limited to the dogleg area	Industrial waste areas on site QN would be covered by a layer of crushed rock under this option.				
Q Central	Alternative QC2	Crushed rock cover, shoreline erosion protection and institutional and access controls	Alternative QC2 includes placement of a crushed rock cover over the identified waste areas on the site and includes measures to protect the shoreline from erosion. Site Q Central encompasses approximately 1,500 feet of shoreline along the east bank of the Mississippi River. Approximately 1,000 feet of the shoreline has been covered with riprap (rocks, concrete or other materials) to provide erosion protection. There is a segment of the shoreline located upstream of an existing barge ramp where the riprap is not as dense as other areas. An area near this segment experienced significant erosion during a 1993 flood event. The eroded area was repaired after the flood event. Alternative QC2 includes placement of additional riprap along a 470-foot portion of the shoreline upstream of the barge ramp to supplement the existing riprap to provide additional shoreline protection.				
	Alternative QC3*	Same as Alternative QC2 with possible soil vapor extraction	Alternative QC3 incorporates all of Alternative QC2 and includes the possibility of installing a soil treatment system to address the potential mobile source area near the barge ramp on Site Q. A soil treatment system will be installed in this area if ground water, surface water and/or sediment sampling shows an unacceptable human health or ecological risk. If no unacceptable risk is identified in ground water, surface water and/or sediment sampling, the area will be covered by crushed rock and the soil treatment system will not installed.				
	Alternative QC4	Same as alternative QC2, except layered cover instead of a crushed rock cover	In addition to shoreline erosion protection and site controls, a layered cap that promotes surface water drainage and minimizes infiltration would be installed over site QC under this option.				
Q South	Alternative QS2	Drum removal, cover and institutional and access controls	In addition to implementation of institutional controls and placement of a crushed rock cover over site QS, this option includes removal of intact drums located in a previously excavated trench on the site. This trench will be relocated and re-excavated to the same dimensions. Any intact drums identified within the trench will be removed and treated/disposed of off-site. Following removal of any intact drums, the excavated area will be backfilled with the soil removed from the trench and clean soil and appropriately covered.				
	Alternative QS3*	Same as Alternative QS2 with soil	This alternative includes a soil cover over identified industrial waste areas.				
	Alternative QS4	Layered cover with institutional and access controls	Under this option, Site QS would be covered with a layered cap that promotes surface water drainage and minimizes infiltration.				
R	Alternative R2*	Soil cover over entire site with institutional and access controls	Site R is covered by a soil cover that is expected to meet the minimum 24-inch cover requirement over the entire area to be covered. However, the thickness and condition of the existing soil cover will be investigated to make sure that a minimum of 2 feet of compacted clay soil exists over the former landfill area.				
	Alternative R3	Layered cover of entire site with institutional and access controls	Under this option, Site R would entirely be covered with a layered cap that promotes surface water drainage and minimizes infiltration	\$9.2 million			
S	Alternative S2	Soil cover over entire site with institutional and access controls	Alternative S2 includes placement of a soil cover over the entire site in conjunction with implementation of site controls.	\$300,000			
	Alternative S3*	Same as Alternative S2 with on-site treatment of potentially mobile source areas	In addition to the items described for Alternative S2, a soil treatment system similar to that described for QC3 will be installed.	\$1.0 million			
	Alternative S4	Layered cover of entire site and site controls	Under this option, Site S in its entirety would be covered with a layered cap that promotes surface water drainage and minimizes infiltration.	\$700,000			

^{*} indicates EPA's recommended cleanup alternative for that site

- These alternatives comply with all federal and state regulations.
- These alternatives are a cost-effective way to manage the most highly contaminated material.
- The total cost of these recommended alternatives is \$20.8 million.

Next steps

The EPA will select a final cleanup plan only after reviewing public opinion during the comment period and public meeting. The EPA will compile answers to public comments in a document called a responsiveness summary. The final cleanup plan will be published in another document called a record of decision or ROD. The ROD and responsiveness summary will be available for review online at www.epa.gov/region5/cleanup/saugetarea2/ and in the official repository at the Cahokia Public Library.

Contact EPA

These EPA representatives are available to answer questions and share information. If you need special accommodations at the June 12 meeting contact Patricia Krause.

Patricia Krause

EPA Community Involvement Coordinator 312-886-9506 krause.patricia@epa.gov

Stephanie Linebaugh

EPA Cleanup Project Manager 312-353-2315 linebaugh.stephanie@epa.gov

EPA toll-free: 800-621-8431, 8:30 a.m. – 4:30 p.m., weekdays

Review the documents

You can review the documents used to make cleanup decisions online at www.epa.gov/region5/cleanup/saugetarea2/. Documents are also available at the Cahokia Public Library, 140 Cahokia Drive.

Cleanup alternatives comparison table

Evaluation Criteria												
		Overall protection of human health and the environment	Compliance with ARARs	Long-term effectiveness and permanence	Reduction of toxicity, mobility, or volume through treatment	Short-term effectiveness	Implementability	Cost (millions \$)	State acceptance	Community acceptance		
	1*							\$0.0		Will be evaluated after public comment period		
	02							\$6.3				
	O3							\$5.7				
	04							\$16.2				
	P2							\$2.6				
	P3							\$2.9	Will be evaluated after public comment period			
	P4							\$5.1				
	QN2							\$1.2				
	QN3							\$12.8				
ro.	QN4							\$33.3				
Options	QN5							\$3.0				
Opti	QC2							\$2.0				
0	QC3							\$2.8				
	QC4							\$39.5				
	QS2							\$2.0				
	QS3							\$4.4				
	QS4							\$8.7				
	R2							\$2.0				
	R3							\$9.2				
	S2							\$0.3				
	S3							\$1.0				
	S4							\$0.6				
■ Fully meets criteria												

^{*}Option 1 is the same for O, P, Q, R and S EPA's recommended alternative



FIRST CLASS

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ВЕТИВИ SERVICE REQUESTED

SAUGET AREA 2 SUPERFUND SITE: EPA Proposes Cleanup Plan for Soil and Ground Water

This fact sheet is printed on paper made of recycled fibers.

The EPA invites comments on its proposed cleanup actions for the Sauget Area 2 site.

Wednesday, June 12, 6:30 p.m. Cahokia Village Hall 103 Main St.

Sauget Area 2 Public Meeting